



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,686	12/28/2001	Sun Min Kim	0630-1292P	3634

2292 7590 09/29/2003

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

NGUYEN, HIEP

ART UNIT PAPER NUMBER

2816

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/028,686

Applicant(s)

KIM ET AL.

Examiner

Hiep Nguyen

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7-10,12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7-10 and 12 is/are rejected.
- 7) ☒ Claim(s) 2 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This is responsive to the amendment filed on 08-13-03. Applicant's arguments with respect to references of Banba et al. (US Pat. 6,128,242) have been carefully considered but they are not deemed to be persuasive to overcome the reference. Thus the claims remained rejected under Banba. However, the rejections are changed because of the amendment of the claims.

Drawings

The drawings filed on 08-13-03 have been approved.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,3, 5, 7-10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Banba et al. (US Pat. 6,128,242).

Regarding claim 1, figure 8 of Banba shows a charge pump circuit for supplying a boosted voltage to a memory device, **comprising:**

a charge pump part constructed with first to nth unit (n=2) charge pumps (22 and 25);
and

a mufti-level detector (27, 28) that detects a level variation of the boosted voltage (Vccint) and outputs first to n (N=2) level detection signals (OSC and the output of NAND gate 32) for selectively driving corresponding individual unit charge pumps (22 and 25), the mufti-level detector including:

a voltage distributor (26) for dividing the boosted voltage (Vccint) into first to nth voltage levels (n=2); and

Art Unit: 2816

first to nth level detectors (27, 28) for comparing the first to nth ($n=2$) voltage levels with a reference level (V_{ref}) and generating the first to nth ($n=2$) level detection signals (CPE and SAVE)

Regarding claim 3, figure 8 of Banba shows that the first unit charge pump (22) is always driven by the level detector signal (CPE or OSC).

Regarding claims 5, 7 and 8, the second to nth ($n=2$) unit charge pumps (22 and 25) are selectively driven in accordance with the level of the boosted voltage (V_{ccint}). The level detectors (27, 28) include differential detectors (col.6, lines 39-41). The first voltage level (input voltage applied to the (-) input of the first level detector 27) is lower than the reference voltage (V_{ref}) in order to produce a high level output signal (CPE) (col. 7, lines 52-54).

Regarding claim 9, figure 8 of Banba shows charge pump device associated with “a memory device” (not shown but disclosed in the abstract and col. 4, lines 10-25), comprising:

- a charge pump part including first to nth ($n=2$) unit charge pumps (22 and 25) to generate a boosted voltage (V_{ccint});

- a mufti-level detector (27, 28) that detects a level of the boosted voltage (V_{ccint}) and outputs first to nth level detection signals (CPE and SAVE, $n=2$) for selectively driving corresponding individual unit charge pumps (22 and 25), wherein the first unit charge pump (22) is always driven by the first level detection signal (CPE or OSC) output from the mufti-level detector, and each of the first to nth ($n=2$) level detectors is composed of a different amplifier (27, 28). Note that the first unit charge pump (22) is always driven by the first level detection signal output from the mufti-level detector and the second unit charge pump (25) is selectively driven depending on the level of signal (SAVE).

Regarding claims 10 and 12, figure 8 of Banba shows the charge pump device of claim 9, wherein the mufti-level detector includes: a voltage distributor (26) for dividing the boosted voltage (V_{ccint}) into first to nth ($n=2$) voltage levels; and first to nth level detectors (27, 28) for detecting a plurality of levels of the boosted voltage by comparing the first to nth ($n=2$) voltage levels divided by the voltage distributor (26) with a reference level (V_{ref}). The first voltage level (input voltage applied to the (-) input of the first level detector 27) is lower than the reference voltage (V_{ref}) in order to produce a high level output signal (CPE) (col. 7, lines 52-54).

Art Unit: 2816

Allowable Subject Matter

Claims 2 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Claims 2 and 15 are objected to because the prior art of record fails to teach or fairly suggest a charge pump device having more than two level detection signals as called for in claim 2; and a charge pump device having second to nth unit charge pumps that are selectively driven in accordance with the level of the boosted voltage as called or in claim 15.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Hiep Nguyen whose telephone number is (703) 305-0127. The examiner can normally be reached on Monday to Friday from 7:30 A.M. to 4:00 P.M.. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached on (703) 308-4876. The fax phone number for this Group is (703) 308-6251.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Hiep Nguyen

09-26-03 


TUANT. LAM
PRIMARY EXAMINER